

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A magneto optic device, comprising:
a semiconductor laser which emits a laser beam from a laser beam output surface; and
a thin film magnetic transducer stacked on the semiconductor laser, the thin film magnetic transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap.
2. (Currently Amended) A magneto optic device according to claim 1, wherein the thin film magnetic transducer comprises:
~~_____ a magnetic circuit having a magnetic gap; and~~
~~_____ a coil wound around a core as an element of the magnetic circuit.~~
3. (Currently Amended) A magneto optic device according to claim 2~~1~~, wherein the magnetic gap is formed in a laser beam output position in the laser beam output surface.
4. (Currently Amended) A magneto optic device according to claim 2~~1~~, wherein the magnetic gap has a length smaller than the spot diameter of the laser beam in the laser beam output surface.
5. (Currently Amended) A magneto optic device according to claim 2~~1~~, wherein the thin film magnetic transducer has plural magnetic gaps in the laser beam output surface.
6. (Original) A magneto optic device according to claim 2, wherein the coil is wound around the core in a cylindrical shape.
7. (Original) A magneto optic device according to claim 2, wherein the coil is wound around the core in a disk shape.

8. (Re-presented - Formerly Dependent Claim No. 8) A magneto optic device according to claim 2, wherein the semiconductor laser is comprising:

_____ -an edge emitting semiconductor laser; that emits a laser beam from a laser beam output surface; and

_____ a thin film magnetic transducer stacked on the semiconductor laser, comprising:

_____ a magnetic circuit having a magnetic gap, and

_____ a coil wound around a core as an element of the magnetic circuit,

wherein:

_____ the magnetic gap is formed in the laser beam output surface of the edge emitting semiconductor laser; and

_____ the coil is formed on an anode of the edge emitting semiconductor laser.

9. (Currently Amended) A magneto optic device according to claim 2, wherein: _____ the semiconductor laser is an edge emitting semiconductor laser, and the magnetic gap and the coil are formed in the laser beam output surface of the edge emitting semiconductor laser.

10. (Currently Amended) A magneto optic device according to claim 2, wherein: _____ the semiconductor laser is a vertical cavity surface emitting semiconductor laser, and

_____ the magnetic gap and the coil are formed in the laser beam output surface of the vertical cavity surface emitting semiconductor laser.

11. (Original) A magneto optic device according to claim 1, wherein the thin film magnetic transducer has a coil formed in the laser beam output surface along an optical axis as a center.

12. (Original) A magneto optic device according to claim 11, wherein the thin film magnetic transducer has a shading body which is disposed on the inside of the coil and has an opening smaller than the spot diameter of the laser beam on the laser beam output surface in a laser beam output position of the laser beam output surface.

13. (Original) A magneto optic device according to claim 12, wherein the shading body is made of a material having a high magnetic permeability.

14. (Currently Amended) A magneto optic device according to claim 12, wherein: _____ the semiconductor laser is a vertical cavity surface emitting semiconductor laser, and

the shading body also serves as an electrode provided on the laser beam output surface side of the vertical cavity surface emitting semiconductor laser.

15. (Currently Amended) A magneto optic device, comprising:
a semiconductor laser which emits a laser beam from a laser beam output surface;
a shading body having an opening in a laser beam output position in the laser beam output surface; and

a thin film magnetic transducer which has a magnetic gap in the laser beam output surface and is stacked on the semiconductor laser, the thin film magnetic transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap.

16. (Original) A magneto optic device according to claim 15, wherein the magnetic gap is formed in the laser beam output position in the laser beam output surface.

17. (Currently Amended) A magneto optic device according to claim 15, wherein: _____ the semiconductor laser is a vertical cavity surface emitting semiconductor laser, and

the shading body also serves as an electrode which is provided on the laser beam output surface side of the vertical cavity surface emitting semiconductor laser.

18. (Original) A magneto optic device according to claim 15, wherein a length in a gap width direction of the opening is smaller than a gap width of the magnetic gap.

19. (Currently Amended) A magneto optic device according to claim 15, wherein the opening is formed on the side of one of ~~a the pair of poles which are disposed so as to face each other over the magnetic gap.~~

20. (Original) A magneto optic device according to claim 15, wherein the shading body has a small metal body having a size smaller than that of the opening within the opening.

21. (Currently Amended) A magneto optic device according to claim 15, wherein the shading body is formed around ~~a the pair of poles which are disposed facing each other over the magnetic gap~~ so that the shading body is flush with the pair of poles.

22. (Currently Amended) A magneto optic device, comprising:
a semiconductor laser which emits a laser beam from a laser beam output surface; and

a thin film magnetic transducer and a magnetoresistive sensor which are stacked on the semiconductor laser, the thin film magnetic transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap.

23. (Currently Amended) A magneto optic device according to claim 22, wherein:
_____ the magnetoresistive sensor is stacked on the semiconductor laser via a thermal resistive film, and

the thin film magnetic transducer is stacked on the magnetoresistive sensor.

24. (Currently Amended) A magneto optic device according to claim 22, wherein:
_____ the thin film magnetic transducer is stacked on the semiconductor laser, and

the magnetoresistive sensor is stacked on the thin film magnetic transducer.

25. (Currently Amended) A magneto optic head, comprising:

a magneto optic device having:

a semiconductor laser which emits a laser beam from a laser beam output surface, and

a thin film magnetic transducer ~~which has a magnetic gap in the laser beam output surface and is stacked on the semiconductor laser,~~ the thin film magnetic transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap; and

a flying slider which holds the magneto optic device and flies in a predetermined direction relative to a recording medium over the recording medium.

26. (Original) A magneto optic head according to claim 25, wherein the magnetic gap is formed perpendicular to the predetermined direction.

27. (Original) A magneto optic head according to claim 25, wherein the magnetic gap is formed parallel to the predetermined direction.

28. (Original) A magneto optic head according to claim 25, wherein the opening is disposed nearer to the predetermined direction side than the magnetic gap.

29. (Currently Amended) A magneto optic head, comprising:

a magneto optic device having:

a semiconductor laser which emits a laser beam from a laser beam output surface, and

a shading body having an opening in a laser beam output position in the laser beam output surface, and

a thin film magnetic transducer ~~which has a magnetic gap in the laser beam output surface and is stacked on the semiconductor laser,~~ the thin film magnetic

transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap; and

a flying slider which holds the magneto optic device and flies in a predetermined direction relative to a recording medium over the recording medium.

30. (Currently Amended) A magneto optic head according to claim 29, wherein:
the magnetic gap is formed in parallel with the predetermined direction; and
~~and~~ the opening has a rectangular shape which is long in the predetermined direction and is disposed nearer to the predetermined direction side than the magnetic gap.

31. (Currently Amended) A magneto optic head according to claim 29, wherein:
the magnetic gap is formed perpendicular to the predetermined direction, and
the opening has a rectangular shape which is long along the predetermined direction and is disposed nearer to the predetermined direction side than the magnetic gap and is disposed nearer to one of ~~a the pair of poles which are arranged so as to face each other over the magnetic gap.~~

32. (Currently Amended) A magneto optic head, comprising:
a semiconductor laser which emits a laser beam;
a transparent condensing medium having an incident surface on which the laser beam from the semiconductor laser is incident and a light-receiving surface on which the laser beam incident on the incident surface is condensed to thereby form a beam spot; and
a thin film magnetic transducer including a magnetic circuit which is stacked on the light-receiving surface and has a magnetic gap, and a coil wound around a core as a component of the magnetic circuit.

33. (Original) A magneto optic head according to claim 32, wherein the magnetic gap is formed in a forming position of the beam spot in the light-receiving surface.

34. (Original) A magneto optic head according to claim 32, wherein the magnetic gap has a length smaller than the size of the beam spot.

35. (Original) A magneto optic head according to claim 32, wherein the thin film magnetic transducer has plural magnetic gaps in the light-receiving surface.

36. (Original) A magneto optic head according to claim 32, wherein the coil is wound in a cylindrical shape around the core.

37. (Original) A magneto optic head according to claim 32, wherein the coil is wound in a disk shape around the core.

38. (Original) A magneto optic head according to claim 32, wherein the transparent condensing medium is either a hemispherical solid immersion lens or a truncated spherical super solid immersion lens.

39. (Original) A magneto optic head according to claim 32, wherein the transparent condensing medium has a reflecting surface by which the laser beam incident on the incident surface is reflected so as to form the beam spot on the light-receiving surface.

40. (Original) A magneto optic head according to claim 39, wherein the reflection surface is constructed by a part of a paraboloid of revolution.

41. (Original) A magneto optic head according to claim 39, wherein the reflecting surface is constructed by a flat plane and a reflection type hologram is provided on the surface of the flat plane.

42. (Currently Amended) A magneto optic head according to claim 32, wherein:
 _____ the transparent condensing medium comprises a first transparent medium and a second transparent medium which have almost the same refractive index,
 the first transparent medium has the incident surface, and
 the second transparent medium has the light-receiving surface and is a flying slider which flies over a recording medium.

43. (Currently Amended) A magneto optic head, comprising:
a semiconductor laser which emits a laser beam;
a transparent condensing medium having an incident surface on which the laser beam from the semiconductor laser is incident and a light-receiving surface on which the laser beam incident on the incident surface is condensed to thereby form a beam spot;
a shading body having an opening smaller than the beam spot in a position in which the beam spot is formed in the light-receiving surface; and
a thin film magnetic transducer which is stacked on the light-receiving surface and has a magnetic gap.

44. (Original) A magneto optic head according to claim 43, wherein the magnetic gap is formed in a forming position of the beam spot in the light-receiving surface.

45. (Original) A magneto optic head according to claim 43, wherein a length in a gap width direction of the opening is smaller than a width of the magnetic gap.

46. (Currently Amended) A magneto optic head according to claim 43, wherein the opening is formed on the side of one of a pair of poles which are disposed so as to face each other ~~over~~ across the magnetic gap.

47. (Original) A magneto optic head according to claim 43, wherein the shading body has a small metal body having a size smaller than that of the opening within the opening.

48. (Currently Amended) A magneto optic head, comprising:
a magneto optic device having a semiconductor laser which emits a laser beam from a laser beam output surface, a thin film magnetic transducer and a magnetoresistive sensor which are stacked on the semiconductor laser, the thin film magnetic transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap; and

a flying slider which holds the magneto optic device and flies over a recording medium.

49. (Currently Amended) A magneto optic head, comprising:

a magneto optic device including a semiconductor laser which emits a laser beam from a laser beam output surface, a shading body having an opening in a laser beam output position in the laser beam output surface, a thin film magnetic transducer which is stacked on the semiconductor laser and has a magnetic gap in the laser beam output surface, and a magnetoresistive sensor, the thin film magnetic transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap; and

a flying slider which holds the magneto optic device and flies over a recording medium in a predetermined direction relative to the recording medium.

50. (Currently Amended) A magneto optic head according to claim 48, wherein:

_____ the magnetoresistive sensor is stacked on the semiconductor laser via a thermal resistive film, and

the thin film magnetic transducer is stacked on the magnetoresistive sensor.

51. (Currently Amended) A magneto optic head according to claim 48, wherein:

_____ the thin film magnetic transducer is stacked on the semiconductor laser, and the magnetoresistive sensor is stacked on the thin film magnetic transducer.

52. (Currently Amended) A magnetic disk drive, comprising:

a magneto optic device having a semiconductor laser which emits a laser beam from a laser beam output surface and a thin film magnetic transducer ~~which has a magnetic gap in the laser beam output surface and is stacked on the semiconductor laser,~~ the thin film magnetic transducer comprising a magnetic circuit having at least a pair of magnetic poles opposed to each other via a magnetic gap;

a disk on which a recording medium is formed on the surface;

a flying slider which holds the magnetooptic device and flies over the recording medium; and

a moving unit which moves the flying slider relative to the disk.

53. (Currently Amended) A magnetic disk drive, comprising:

a magnetooptic device having a semiconductor laser which emits a laser beam, a transparent condensing medium including an incident surface on which the laser beam from the semiconductor laser is incident and a light-receiving surface on which the laser beam incident on the incident surface is condensed so as to form a beam spot, and a thin film magnetic transducer which is stacked on the light-receiving surface and has a magnetic gap;

a disk on which a recording medium is formed on the surface;

a flying slider which holds the magnetooptic device and flies over the recording medium; and

a moving unit which moves the flying slider relative to the disk.

54. (Original) A magnetic disk drive according to claim 52, wherein the semiconductor laser intermittently emits the laser beam at the time of recording information onto the recording medium.

55. (Original) A magnetic disk drive according to claim 52, wherein the semiconductor laser emits the laser beam continuously or intermittently at the time of reproducing information from the recording medium.

56. (Currently Amended) The magnetooptic device of claim 1, further comprising a shading body having an opening in a laser beam output position in the laser beam output surface, ~~wherein the thin film magnetic transducer has a magnetic gap in the laser beam output surface.~~

57. (Previously Added) The magnetooptic device of claim 1, further comprising a magnetoresistive sensor stacked on the semiconductor laser.

58. (Currently Amended) The magneto optic device of claim 1, further comprising a magneto optic head, the magneto optic head including a flying slider which holds the magneto optic device and flies in a predetermined direction relative to a recording medium over the recording medium, wherein the magneto optic device is incorporated in the magneto optic head ~~and the thin film magnetic transducer has a magnetic gap in the laser beam output surface.~~

59. (Currently Amended) The magneto optic device of claim 1, further comprising:

a shading body having an opening in a laser beam output position in the laser beam output surface, and

a magneto optic head, the magneto optic head including a flying slider which holds the magneto optic device and flies in a predetermined direction relative to a recording medium over the recording medium;

wherein the magneto optic device is incorporated in the magneto optic head ~~and the thin film magnetic transducer has a magnetic gap in the laser beam output surface.~~

60. (Currently Amended) The magneto optic device of claim 1, further comprising a magneto optic head, the magneto optic head including a transparent condensing medium having an incident surface on which the laser beam from the semiconductor laser is incident and a light-receiving surface on which the laser beam incident on the incident surface is condensed to thereby form a beam spot, wherein:

the thin film magnetic transducer ~~includes a magnetic circuit which~~ is stacked on the light-receiving surface and has a magnetic gap, ~~and a coil wound around a core as a component of the magnetic circuit; and~~

the magneto optic device is incorporated in the magneto optic head.

61. (Currently Amended) The magneto optic device of claim 1, further comprising a magneto optic head, the magneto optic head including:

a transparent condensing medium having an incident surface on which the laser beam from the semiconductor laser is incident and a light-receiving surface on which the laser beam incident on the incident surface is condensed to thereby form a beam spot; and

a shading body having an opening smaller than the beam spot in a position in which the beam spot is formed in the light-receiving surface, wherein:

the thin film magnetic transducer is stacked on the light-receiving surface and has a magnetic gap; and

the magneto optic device is incorporated in the magneto optic head.

62. (Previously Added) The magneto optic device of claim 1, further comprising a magneto optic head, the magneto optic head including:

a magnetoresistive sensor stacked on the semiconductor laser; and

a flying slider which holds the magneto optic device and flies over a recording medium;

wherein the magneto optic device is incorporated in the magneto optic head.

63. (Currently Amended) The magneto optic device of claim 1, further comprising a magneto optic head, the magneto optic head including:

a shading body having an opening in a laser beam output position in the laser beam output surface;

a magnetoresistive sensor; and

a flying slider which holds the magneto optic device and flies over a recording medium in a predetermined direction relative to the recording medium;

wherein the magneto optic device is incorporated in the magneto optic head, and the thin film magnetic transducer has a magnetic gap in the laser beam output surface.

64. (~~Previously Added~~ Currently Amended) The magnetooptic device of claim 1, further comprising a magnetic disk drive, the magnetic disk drive including:

- a disk on which a recording medium is formed on the surface;
- a flying slider which holds the magnetooptic device and flies over the recording medium; and
- a moving unit which moves the flying slider relative to the disk;

wherein the magnetooptic device is incorporated in the magnetic disk drive, and the thin film magnetic transducer has a magnetic gap in the laser beam output surface.

65. (Currently Amended) The magnetooptic device of claim 1, further comprising a magnetic disk drive, the magnetic disk drive including:

- a transparent condensing medium including an incident surface on which the laser beam from the semiconductor laser is incident and a light-receiving surface on which the laser beam incident on the incident surface is condensed so as to form a beam spot;
- a disk on which a recording medium is formed on the surface;
- a flying slider which holds the magnetooptic device and flies over the recording medium; and
- a moving unit which moves the flying slider relative to the disk;

wherein the magnetooptic device is incorporated in the magnetic disk drive, and the thin film magnetic transducer is stacked on the light-receiving surface and has a magnetic gap.

66. (New) A magnetooptic device according to Claim 1, wherein the magnetic gap is substantially parallel with the laser beam output surface to generate a magnetic field substantially parallel with the laser beam output surface.

what speaks